## Claims

1. A method of assembling and monitoring an acoustic honeycomb panel comprising a double resonator, the panel (10) consisting of a plurality of layers (20, 30, 40, 50 and 60) to be assembled in the direction of the thickness of the panel (10), namely: an acoustic skin (20), a primary honeycomb (30), a septum (40) pierced with a plurality of holes (42), a secondary honeycomb (50) and a solid skin (60), the method including preliminary operations of gluing the various layers (20, 30, 40, 50 and 60) to be assembled, characterized in that:

- in a first step, the two honeycombs (30, 50) are assembled with the septum (40) by gluing, the subassembly thus obtained being referenced (12), the holes (42) in the septum (40) which are still free being referenced (42b);
- subsequent to the assembly of the two honeycombs (30, 50) with the septum (40) and prior to the assembly of at least one of the two skins (20, 60), at least one of the honeycombs (30, 50) thus being uncovered, the degree of perforation of the septum (42) is monitored by scanning the subassembly (12) with a digital camera (84) including an associated illumination system (88, 96), the camera (84) being arranged on the same side as an uncovered honeycomb (30, 50), the camera (84) thus taking shots of the septum (40) at the bottom of the cells of the uncovered honeycomb (30, 50), this illumination system (88, 96) illuminating the region of the septum (40) observed by the camera (84), the successive images (92) thus obtained being transmitted to a computer (94), the computer (94) analyzing the images (92) and establishing the degree of perforation T of the septum (40) by applying the formula $T = N1/N$, in which N1 is the number of

pixels (100) corresponding to the free holes (42b) and N is the number of pixels of the image (92).

2. The method as claimed in claim 1, characterized in that the septum (40) is monitored prior to the assembly of the two skins (20, 60) and in that the illumination system (88, 96) is a diascopic illumination system (96).

3. The method as claimed in claim 1, characterized in that the illumination system (88, 96) is an episcopic illumination system (88).

4. The method as claimed in claim 3, characterized in that on the images (92) the computer (94) delimits, inside each cell, the area (76) of the septum (40) not covered by the adhesive (70), this computer (94) searching the pixels (100) corresponding to the free holes (42b) solely within these areas (76).

5. The method as claimed in any one of claims 1 to 4, characterized in that the resolution of the camera (84) and the enlargement ratio of the images (92) is suitable for each hole (42a) in the septum (40) to cover at least 30 pixels (100).

6. The method as claimed in any one of claims 1 to 5, characterized in that the resolution of the camera (84) and the enlargement ratio of the images (92) is suitable for each hole (42a) in the septum (40) to cover at least 75 pixels (100).

7. The method as claimed in any one of claims 1 to 6, characterized in that it is interrupted when the monitoring operation on the assembled septum (40) shows that it is defective.

8. The method as claimed in any one of claims 1 to 7,

characterized in that the solid skin (60) is produced and glued on the secondary honeycomb (50) in a single operation.

9. The method as claimed in any one of claims 1 to 8, characterized in that, prior to the assembly of the septum (40) with at least one of the honeycombs (30, 50), the degree of perforation T of the bare septum (40) is monitored by scanning the septum (40) with a digital camera (84) including an associated illumination system (88, 96), this illumination system (88, 96) illuminating the region of the septum (40) observed by the camera (84), the successive images (92) thus obtained being transmitted to a computer (94), the computer establishing the degree of perforation T by applying the formula $T = N1/N$, in which N1 is the number of pixels (100) corresponding to the holes 42 and N is the number of pixels of the image (92).

10. The method as claimed in claim 9, characterized in that the assembly of the panel (10) is interrupted when the monitoring operation on the bare septum (40) shows that this septum (40) is defective.

11. The method as claimed in claim 9 or 10, characterized in that the resolution of the camera (84) and the enlargement ratio of the images (92) is suitable for each hole (42a) in the septum (40) to cover at least 30 pixels (100).

12. The method as claimed in any one of claims 9 to 11, characterized in that the resolution of the camera (84) and the enlargement ratio of the images (92) is suitable for each hole (42a) in the septum (40) to cover at least 75 pixels (100).